Indiana Course-Aligned Assessment
Chemistry – Sample Items

1. Many cooks prefer to use copper pans because copper has a relatively low specific heat capacity, 0.39 J/g ·°C. How much energy in kJ is needed to raise the temperature of an empty 970 g copper pan from 24°C to 98°C?

   A 9.1 kJ

   B 28 kJ

   C 37 kJ

   D 184 kJ

2. Based on bonding principles, which compound has the highest melting point?

   A CH_4

   B NaCl

   C NO_2

   D NH_3

3. Given the reaction:

   $Mg(OH)_2(s) + 2HCl(aq) \rightarrow MgCl_2(aq) + 2H_2O(l)$

   Determine the volume of 0.10 M HCl(aq) that will react with 0.10 g $Mg(OH)_2$.

Note: Formulas, constants, and a Periodic Table of the Elements will be provided for students.

Answer Key

Item	Answer	Alignment
1	B	C.6.4
2	A	C.3.5
3	3.4×10^{-2} L	C.4.4